

CLAIMS

1. An apparatus for controlling flow in a flowline under pressure, said apparatus comprising
 - 5 - a flow passage having a first end and a second end, and
 - hindering means for reducing the flow in the flow passage, the hindering means being arranged to move between a first and a second position under influence of a pressure difference between the first end and the second end of the flow passage,
- 10 wherein the reduction of the flow in the flow passage is larger when the hindering means is in the first and second position than when the hindering means is in an intermediate position between said first and second positions.
- 15 2. An apparatus according to claim 1, wherein the hindering means is positioned in the first position when the pressure in the second end is higher than the pressure in the first end.
3. An apparatus according to claim 1 or 2, wherein the hindering means is positioned in the second position when the pressure in the first end is higher than the pressure in the second end.
- 20 4. An apparatus according to any of claims 1 or 2, wherein the hindering means is positioned in the first position when the pressure difference between the second end and the first end is higher than a first predetermined closing value.
- 25 5. An apparatus according to any of claims 1 or 3, wherein the hindering means is positioned in the second position when the pressure difference between the first end and the second end is higher than a second predetermined closing value.
- 30 6. An apparatus according to claims 4 and 5, wherein the first predetermined closing value is substantially equal to the second predetermined closing value.
7. An apparatus according to any of the preceding claims, further comprising biasing means adapted to bias the hindering means towards a predetermined position.
- 35 8. An apparatus according to claim 7, wherein the predetermined position is a position between the first position and the second position.
9. An apparatus according to claim 7, wherein the predetermined position is identical to the first position.

10. An apparatus according to claim 7, wherein the predetermined position is identical to the second position.
- 5 11. An apparatus according to any of claims 7-10, wherein the biasing means is adjustable so as to change a biasing force and/or the predetermined position.
12. An apparatus according to claim 11, further comprising an electrical adjustable element adapted to change the biasing force.
- 10 13. An apparatus according to any of claims 11-12, wherein the biasing force and/or the predetermined position is adjusted dependent on a temperature.
14. An apparatus according to any of claims 11-13, wherein the biasing force and/or the
- 15 predetermined position is adjusted dependent on pressure.
15. An apparatus according to any of claims 11-14, wherein the biasing force and/or the predetermined position is adjusted dependent on fluid properties.
- 20 16. An apparatus according to any of claims 7-15, wherein the biasing means is a spring.
17. An apparatus according to any of the preceding claims, wherein the first and the second position are provided with contact surfaces adapted to collaborate with corresponding contact surfaces of the hindering means so as to provide a substantially
- 25 tight seal when the hindering means is positioned in the first and the second position respectively.
18. An apparatus according to claim 17, wherein at least a part of at least one contact surface comprises a sealing member.
- 30 19. An apparatus according to claim 18, wherein the sealing member comprises a resilient material.
20. An apparatus according to claim 18, wherein the sealing member comprises a ceramic
- 35 material.
21. An apparatus according to any of the preceding claims, wherein the effective cross-sectional area of the flow passage is 800% larger when the hindering means is in an intermediate position than when the hindering means is in the first position and/or the

second position, such as 700% larger, such as 600% larger, such as 500% larger, such as 400% larger, such as 300% larger, such as 200% larger, such as 100% larger.

22. An apparatus according to any of claims 1-21, wherein the hindering means is adapted
5 to slide between the first and the second position.

23. An apparatus according to any of claims 1-22, wherein the hindering means is adapted
to rotate between the first and the second position.

10 24. An apparatus according to claim 23, wherein at least a part of the hindering means is
pivotally connected to the apparatus.

25. An apparatus according to any of the preceding claims, further comprising a leaking
passage adapted to provide a flow channel between the first end and the second end,
15 when the hindering means is positioned in the first position and/or the second position.

26. An apparatus according to any of the preceding claims, wherein the leaking passage is
provided in the hindering means.

20 27. An apparatus according to any of the preceding claims, further comprising at least one
pressure indicator adapted to indicate the pressure in at least a part of the flow passage.

28. An apparatus according to claim 27, wherein the apparatus comprises at least one
pressure indicator adapted to indicate pressure in the first end and at least one pressure
25 indicator adapted to indicate pressure in the second end.

29. An apparatus according to any of the preceding claims, wherein at least a part of the
passage comprises a transparent material, so as allow visual inspection of the fluid and/or
the position of the hindering means.

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30. An apparatus according to any of the preceding claims, further comprising means for
locking the hindering means in the first position and/or the second position and/or an
intermediate position.

35 31. An apparatus according to any of the preceding claims, further comprising a three step
valve adapted to be positioned in
- a blocking position wherein the flow passage is blocked,
- an open position wherein a fluid may flow freely in the flow passage, and

- an operating position wherein the flow passage is open and closed dependent on a flow difference between the first end and the second end.

32. An apparatus according to any of the preceding claims, wherein the apparatus
5 comprises a metallic material selected from the group consisting of iron, steel, aluminium, magnesium, titanium, copper, brass, nickel, zinc, tin, lead, chrome, wolfram, bronze, gold, silver and platinum.

33. An apparatus according to any of the preceding claims, wherein the apparatus
10 comprises a plastic material and/or a composite material and/or a fibre material.

34. An apparatus according to any of the preceding claims, wherein the apparatus
comprises locking means adapted to lock a connector in a locking position, the connector
being a connecting element of a flow line.

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35. A tap comprising any feature or aspect according to any of the claims 1-34.